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RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/892,403A12/2/97  
DATE: 11/29/97  
TIME: 16:26:52

INPUT SET: S21809.raw

This Raw Listing contains the General  
Information Section and up to the first 5 pages.

## SEQUENCE LISTING

## (1) General Information:

(i) APPLICANT: Murphy, Brian R.  
Collins, Peter L.  
Whitehead, Stephen S.  
Bukreyev, Alexander A.  
Juhasz, Katalin

(ii) TITLE OF INVENTION: PRODUCTION OF ATTENUATED RESPIRATORY  
SYNCYTIAL VIRUS VACCINES FROM CLONED NUCLEOTIDE SEQUENCES

(iii) NUMBER OF SEQUENCES: 14

## (iv) CORRESPONDENCE ADDRESS:

(A) ADDRESSEE: Townsend and Townsend and Crew LLP  
(B) STREET: Two Embarcadero Center, 8th Floor  
(C) CITY: San Francisco  
(D) STATE: CA  
(E) COUNTRY: USA  
(F) ZIP: 94111-3834

## (v) COMPUTER READABLE FORM:

(A) MEDIUM TYPE: Floppy disk  
(B) COMPUTER: IBM PC compatible  
(C) OPERATING SYSTEM: PC-DOS/MS-DOS  
(D) SOFTWARE: PatentIn Release #1.0, Version #1.25

## (vi) CURRENT APPLICATION DATA:

(A) APPLICATION NUMBER: US  
(B) FILING DATE: 15-JUL-1997  
(C) CLASSIFICATION:

## (vii) PRIOR APPLICATION DATA:

(A) APPLICATION NUMBER: US 60/047,634  
(B) FILING DATE: 23-MAY-1997

## (vii) PRIOR APPLICATION DATA:

(A) APPLICATION NUMBER: US 60/046,141  
(B) FILING DATE: 09-MAY-1997

## (vii) PRIOR APPLICATION DATA:

(A) APPLICATION NUMBER: US 60/021,773  
(B) FILING DATE: 15-JUL-1996

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RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/892,403ADATE: 11/29/97  
TIME: 16:26:55

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47 (viii) ATTORNEY/AGENT INFORMATION:  
48 (A) NAME: Parmelee, Steven W.  
49 (B) REGISTRATION NUMBER: 31,990  
50 (C) REFERENCE/DOCKET NUMBER: 17634-000510  
51  
52 (ix) TELECOMMUNICATION INFORMATION:  
53 (A) TELEPHONE: 206-467-9600  
54 (B) TELEFAX: 415-576-0300  
55  
56  
57 (2) INFORMATION FOR SEQ ID NO:1:  
58  
59 (i) SEQUENCE CHARACTERISTICS:  
60 (A) LENGTH: 15223 base pairs  
61 (B) TYPE: nucleic acid  
62 (C) STRANDEDNESS: single  
63 (D) TOPOLOGY: linear  
64  
65 (ii) MOLECULE TYPE: cDNA  
66  
67  
68  
69 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:  
70  
71 ACGCGAAAAA ATGCGTACAA CAAACTTGCA TAAACCAAAA AAATGGGGCA AATAAGAATT 60  
72  
73 TGATAAGTAC CACTTAAATT TAACTCCCTT GGTTAGAGAT GGCAGCAAT TCATTGAGTA 120  
74  
75 TGATAAAAGT TAGATTACAA AATTTGTTTG ACAATGATGA AGTAGCATTG TTAATAATAA 180  
76  
77 CATGCTATAC TGATAAATTA ATACATTTAA CTAATGCTTT GGCTAAGGCA GTGATACATA 240  
78  
79 CAATCAAATT GAATGGCATT GTGTTTGTGC ATGTTATTAC AAGTAGTGAT ATTTGCCCTA 300  
80  
81 ATAATAATAT TGTAGTAAAA TCCAATTTCA CAACAATGCC AGTACTACAA AATGGAGGTT 360  
82  
83 ATATATGGGA AATGATGGAA TTAACACATT GCTCTCAACC TAATGGTCTA CTAGATGACA 420  
84  
85 ATTGTGAAAT TAAATTCTCC AAAAACTAA GTGATTCAAC AATGACCAAT TATATGAATC 480  
86  
87 AATTATCTGA ATTACTTGGA TTTGATCTTA ATCCATAAAT TATAATTAAT ATCAACTAGC 540  
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89 AAATCAATGT CACTAACACC ATTAGTTAAT ATAAAACTTA ACAGAAGACA AAAATGGGGC 600  
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91 AAATAAATCA ATTCAGCCAA CCCAACCATG GACACAACCC ACAATGATAA TACACCACAA 660  
92  
93 AGACTGATGA TCACAGACAT GAGACCGTTG TCACTTGAGA CCATAATAAC ATCACTAACC 720  
94  
95 AGAGACATCA TAACACACAA ATTTATATAC TTGATAAATC ATGAATGCAT AGTGAGAAAA 780  
96  
97 CTTGATGAAA AGCAGGCCAC ATTTACATTC CTGGTCAACT ATGAAATGAA ACTATTACAC 840  
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99 AAAGTAGGAA GCACTAAATA TAAAAAATAT ACTGAATACA ACACAAAATA TGGCACTTTC 900

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PATENT APPLICATION US/08/892,403ADATE: 11/29/97  
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| 101 | CCTATGCCAA | TATTCATCAA | TCATGATGGG | TTCTTAGAAT | GCATTGGCAT | TAAGCCTACA | 960  |
| 102 |            |            |            |            |            |            |      |
| 103 | AAGCATACTC | CCATAATATA | CAAGTATGAT | CTCAATCCAT | AAATTTCAAC | ACAATATTCA | 1020 |
| 104 |            |            |            |            |            |            |      |
| 105 | CACAATCTAA | AACAACAAC  | CTATGCATAA | CTATACTCCA | TAGTCCAGAT | GGAGCCTGAA | 1080 |
| 106 |            |            |            |            |            |            |      |
| 107 | AATTATAGTA | ATTTAAACT  | TAAGGAGAGA | TATAAGATAG | AAGATGGGGC | AAATACAACC | 1140 |
| 108 |            |            |            |            |            |            |      |
| 109 | ATGGCTCTTA | GCAAAGTCAA | GTTGAATGAT | ACACTCAACA | AAGATCAACT | TCTGTCATCC | 1200 |
| 110 |            |            |            |            |            |            |      |
| 111 | AGCAAATACA | CCATCCAACG | GAGCACAGGA | GATAGTATTG | ATACTCCTAA | TTATGATGTG | 1260 |
| 112 |            |            |            |            |            |            |      |
| 113 | CAGAAACACA | TCAATAAGTT | ATGTGGCATG | TTATTAATCA | CAGAAGATGC | TAATCATAAA | 1320 |
| 114 |            |            |            |            |            |            |      |
| 115 | TTCCTGCGGT | TAATAGGTAT | GTTATATGCG | ATGCTAGGT  | TAGGAAGAGA | AGACACCATA | 1380 |
| 116 |            |            |            |            |            |            |      |
| 117 | AAAATACTCA | GAGATGCGGG | ATATCATGTA | AAAGCAAATG | GAGTAGATGT | AACAACACAT | 1440 |
| 118 |            |            |            |            |            |            |      |
| 119 | CGTCAAGACA | TTAATGGAAA | AGAAATGAAA | TTTGAAGTGT | TAACATTGGC | AAGCTTAACA | 1500 |
| 120 |            |            |            |            |            |            |      |
| 121 | ACTGAAATTC | AAATCAACAT | TGAGATAGAA | TCTAGAAAAT | CCTACAAAAA | AATGCTAAAA | 1560 |
| 122 |            |            |            |            |            |            |      |
| 123 | GAAATGGGAG | AGGTAGCTCC | AGAATACAGG | CATGACTCTC | CTGATTGTGG | GATGATAATA | 1620 |
| 124 |            |            |            |            |            |            |      |
| 125 | TTATGTATAG | CAGCATTAGT | AATAACTAAA | TTAGCAGCAG | GGGACAGATC | TGGTCTTACA | 1680 |
| 126 |            |            |            |            |            |            |      |
| 127 | GCCGTGATTA | GGAGAGCTAA | TAATGTCCTA | AAAAATGAAA | TGAAACGTTA | CAAAGGCTTA | 1740 |
| 128 |            |            |            |            |            |            |      |
| 129 | CTACCCAAGG | ACATAGCCAA | CAGCTTCTAT | GAAGTGTTTG | AAAAACATCC | CCACTTTATA | 1800 |
| 130 |            |            |            |            |            |            |      |
| 131 | GATGTTTTTG | TTCATTTTGG | TATAGCACAA | TCTTCTACCA | GAGGTGGCAG | TAGAGTTGAA | 1860 |
| 132 |            |            |            |            |            |            |      |
| 133 | GGGATTTTTG | CAGGATTGTT | TATGAATGCC | TATGGTGCAG | GGCAAGTGAT | GTTACGGTGG | 1920 |
| 134 |            |            |            |            |            |            |      |
| 135 | GGAGTCTTAG | CAAAATCAGT | TAAAAATATT | ATGTTAGGAC | ATGCTAGTGT | GCAAGCAGAA | 1980 |
| 136 |            |            |            |            |            |            |      |
| 137 | ATGGAACAAG | TTGTTGAGGT | TTATGAATAT | GCCCCAAAAT | TGGGTGGTGA | AGCAGGATTC | 2040 |
| 138 |            |            |            |            |            |            |      |
| 139 | TACCATATAT | TGAACAACCC | AAAAGCATCA | TTATTATCTT | TGACTCAATT | TCCTCACTTC | 2100 |
| 140 |            |            |            |            |            |            |      |
| 141 | TCCAGTGTAG | TATTAGGCAA | TGCTGCTGGC | CTAGGCATAA | TGGGAGAGTA | CAGAGGTACA | 2160 |
| 142 |            |            |            |            |            |            |      |
| 143 | CCGAGGAATC | AAGATCTATA | TGATGCAGCA | AAGGCATATG | CTGAACAAC  | CAAAGAAAAT | 2220 |
| 144 |            |            |            |            |            |            |      |
| 145 | GGTGTGATTA | ACTACAGTGT | ACTAGACTTG | ACAGCAGAAG | AACTAGAGGC | TATCAAACAT | 2280 |
| 146 |            |            |            |            |            |            |      |
| 147 | CAGCTTAATC | CAAAGATAA  | TGATGTAGAG | CTTTGAGTTA | ATAAAAAATG | GGGCAAATAA | 2340 |
| 148 |            |            |            |            |            |            |      |
| 149 | ATCATCATGG | AAAAGTTTGC | TCCTGAATTC | CATGGAGAAG | ATGCAAACAA | CAGGGCTACT | 2400 |
| 150 |            |            |            |            |            |            |      |
| 151 | AAATTCCTAG | AATCAATAAA | GGGCAAATTC | ACATCACCCA | AAGATCCCAA | GAAAAAAGAT | 2460 |
| 152 |            |            |            |            |            |            |      |

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| 153 | AGTATCATAT | CTGTCAACTC  | AATAGATATA  | GAAGTAACCA  | AAGAAAGCCC  | TATAACATCA | 2520 |
| 154 |            |             |             |             |             |            |      |
| 155 | AATTCAACTA | TTATCAACCC  | AACAAATGAG  | ACAGATGATA  | CTGCAGGGAA  | CAAGCCCAAT | 2580 |
| 156 |            |             |             |             |             |            |      |
| 157 | TATCAAAGAA | AACCTCTAGT  | AAGTTTCAAA  | GAAGACCCTA  | CACCAAGTGA  | TAATCCCTTT | 2640 |
| 158 |            |             |             |             |             |            |      |
| 159 | TCTAAACTAT | ACAAAGAAAC  | CATAGAAACA  | TTTGATAACA  | ATGAAGAAGA  | ATCCAGCTAT | 2700 |
| 160 |            |             |             |             |             |            |      |
| 161 | TCATACGAAG | AAATAAATGA  | TCAGACAAAC  | GATAATATAA  | CAGCAAGATT  | AGATAGGATT | 2760 |
| 162 |            |             |             |             |             |            |      |
| 163 | GATGAAAAAT | TAAGTGAAAT  | ACTAGGAATG  | CTTCACACAT  | TAGTAGTGGC  | AAGTGCAGGA | 2820 |
| 164 |            |             |             |             |             |            |      |
| 165 | CCTACATCTG | CTCGGGATGG  | TATAAGAGAT  | GCCATGGTTG  | GTTTAAGAGA  | AGAAATGATA | 2880 |
| 166 |            |             |             |             |             |            |      |
| 167 | GAAAAAATCA | GAAGTGAAGC  | ATTAATGACC  | AATGACAGAT  | TAGAAGCTAT  | GGCAAGACTC | 2940 |
| 168 |            |             |             |             |             |            |      |
| 169 | AGGAATGAGG | AAAGTGAAAA  | GATGGCAAAA  | GACACATCAG  | ATGAAGTGTC  | TCTCAATCCA | 3000 |
| 170 |            |             |             |             |             |            |      |
| 171 | ACATCAGAGA | AATTGAACAA  | CTATTGGAA   | GGGAATGATA  | GTGACAATGA  | TCTATCACTT | 3060 |
| 172 |            |             |             |             |             |            |      |
| 173 | GAAGATTTCT | GATTAGTTAC  | CAATCTTCAC  | ATCAACACAC  | AATACCAACA  | GAAGACCAAC | 3120 |
| 174 |            |             |             |             |             |            |      |
| 175 | AAACTAACCA | ACCCAATCAT  | CCAACCAAAC  | ATCCATCCGC  | CAATCAGCCA  | AACAGCCAAC | 3180 |
| 176 |            |             |             |             |             |            |      |
| 177 | AAAACAACCA | GCCAATCCAA  | AACTAACCAC  | CCGGAAAAAA  | TCTATAATAT  | AGTTACAAAA | 3240 |
| 178 |            |             |             |             |             |            |      |
| 179 | AAAGGAAAGG | GTGGGGCAAA  | TATGGAAACA  | TACGTGAACA  | AGCTTCACGA  | AGGCTCCACA | 3300 |
| 180 |            |             |             |             |             |            |      |
| 181 | TACACAGCTG | CTGTTCAATA  | CAATGTCTTA  | GAAAAAGACG  | ATGACCCTGC  | ATCACTTACA | 3360 |
| 182 |            |             |             |             |             |            |      |
| 183 | ATATGGGTGC | CCATGTTCCA  | ATCATCTATG  | CCAGCAGATT  | TACTTATAAA  | AGAAGTAGCT | 3420 |
| 184 |            |             |             |             |             |            |      |
| 185 | AATGTCAACA | TACTAGTGAA  | ACAAATATCC  | ACACCCAAGG  | GACCTTCACT  | AAGAGTCATG | 3480 |
| 186 |            |             |             |             |             |            |      |
| 187 | ATAAACTCAA | GAAGTGCAGT  | GCTAGCACAA  | ATGCCCAGCA  | AATTTACCAT  | ATGCGCTAAT | 3540 |
| 188 |            |             |             |             |             |            |      |
| 189 | GTGTCCTTGG | ATGAAAGAAG  | CAAAC TAGCA | TATGATGTAA  | CCACACCC TG | TGAAATCAAG | 3600 |
| 190 |            |             |             |             |             |            |      |
| 191 | GCATGTAGTC | TAACATGCCT  | AAAATCAAAA  | AATATGTTGA  | CTACAGTTAA  | AGATCTCACT | 3660 |
| 192 |            |             |             |             |             |            |      |
| 193 | ATGAAGACAC | TCAACCC TAC | ACATGATATT  | ATTGCTTTTAT | GTGAATTTGA  | AAACATAGTA | 3720 |
| 194 |            |             |             |             |             |            |      |
| 195 | ACATCAAAAA | AAGTCATAAT  | ACCAACATAC  | CTAAGATCCA  | TCAGTGT CAG | AAATAAAGAT | 3780 |
| 196 |            |             |             |             |             |            |      |
| 197 | CTGAACACAC | TTGAAAATAT  | AACAACCACT  | GAATTCAAAA  | ATGCTATCAC  | AAATGCAAAA | 3840 |
| 198 |            |             |             |             |             |            |      |
| 199 | ATCATCCCTT | ACTCAGGATT  | ACTATTAGTC  | ATCACAGTGA  | CTGACAACAA  | AGGAGCATTC | 3900 |
| 200 |            |             |             |             |             |            |      |
| 201 | AAATACATAA | AGCCACAAAG  | TCAATTCATA  | G TAGATCTTG | GAGCTTACCT  | AGAAAAAGAA | 3960 |
| 202 |            |             |             |             |             |            |      |
| 203 | AGTATATATT | ATGTTACCAC  | AAATTGGAAG  | CACACAGCTA  | CACGATTTGC  | AATCAAACCC | 4020 |
| 204 |            |             |             |             |             |            |      |
| 205 | ATGGAAGATT | AACCTTTTTTC | CTCTACATCA  | GTGTGTTAAT  | TCATACAAAC  | TTTCTACCTA | 4080 |

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PATENT APPLICATION US/08/892,403ADATE: 11/29/97  
TIME: 16:27:02

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| 206 |            |            |            |             |            |            |      |
| 207 | CATTCTTCAC | TTCACCATCA | CAATCACAAA | CACCTCTGTGG | TTCAACCAAT | CAAACAAAAC | 4140 |
| 208 |            |            |            |             |            |            |      |
| 209 | TTATCTGAAG | TCCCAGATCA | TCCCAAGTCA | TTGTTTATCA  | GATCTAGTAC | TCAAATAAGT | 4200 |
| 210 |            |            |            |             |            |            |      |
| 211 | TAATAAAAAA | TATACACATG | GGGCAAATAA | TCATTGGAGG  | AAATCCAAC  | AATCACAATA | 4260 |
| 212 |            |            |            |             |            |            |      |
| 213 | TCTGTTAACA | TAGACAAGTC | CACACACCAT | ACAGAATCAA  | CCAATGGAAA | ATACATCCAT | 4320 |
| 214 |            |            |            |             |            |            |      |
| 215 | AACAATAGAA | TTCTCAAGCA | AATTCTGGCC | TTACTTTTACA | CTAATACACA | TGATCACAAC | 4380 |
| 216 |            |            |            |             |            |            |      |
| 217 | AATAATCTCT | TTGCTAATCA | TAATCTCCAT | CATGATTGCA  | ATACTAAACA | AACTTTGTGA | 4440 |
| 218 |            |            |            |             |            |            |      |
| 219 | ATATAACGTA | TTCCATAACA | AAACCTTTGA | GTTACCAAGA  | GCTCGAGTCA | ACACATAGCA | 4500 |
| 220 |            |            |            |             |            |            |      |
| 221 | TTCATCAATC | CAACAGCCCA | AAACAGTAAC | CTTGCAATTTA | AAAATGAACA | ACCCCTACCT | 4560 |
| 222 |            |            |            |             |            |            |      |
| 223 | CTTTACAACA | CCTCATTAAC | ATCCCACCAT | GCAAACCAC   | ATCCATACTA | TAAAGTAGTT | 4620 |
| 224 |            |            |            |             |            |            |      |
| 225 | AATTAAAAAT | AGTCATAACA | ATGAACTAGG | ATATCAAGAC  | TAACAATAAC | ATTGGGGCAA | 4680 |
| 226 |            |            |            |             |            |            |      |
| 227 | ATGCAAACAT | GTCCAAAAAC | AAGGACCAAC | GCACCGCTAA  | GACATTAGAA | AGGACCTGGG | 4740 |
| 228 |            |            |            |             |            |            |      |
| 229 | ACACTCTCAA | TCATTTATTA | TTCATATCAT | CGTGCTTATA  | TAAGTTAAAT | CTTAAATCTG | 4800 |
| 230 |            |            |            |             |            |            |      |
| 231 | TAGCACAAAT | CACATTATCC | ATCTCTGGCA | TGATAATCTC  | AACTTCAC   | ATAATTGCAG | 4860 |
| 232 |            |            |            |             |            |            |      |
| 233 | CCATCATATT | CATAGCCTCG | GCAAACCACA | AAGTCACACC  | AACAAC     | ATCATACAAG | 4920 |
| 234 |            |            |            |             |            |            |      |
| 235 | ATGCAACAAG | CCAGATCAAG | AACACAACCC | CAACATACCT  | CACCCAGAAT | CCTCAGCTTG | 4980 |
| 236 |            |            |            |             |            |            |      |
| 237 | GAATCAGTCC | CTCTAATCCG | TCTGAAATTA | CATCACAAAT  | CACCACCATA | CTAGCTTCAA | 5040 |
| 238 |            |            |            |             |            |            |      |
| 239 | CAACACCAGG | AGTCAAGTCA | ACCC       | CCACAACAGT  | CAAGACCAA  | AACACAACAA | 5100 |
| 240 |            |            |            |             |            |            |      |
| 241 | CAACTCAAAC | ACAACCCAGC | AAGCCACCA  | CAAAACAACG  | CAAAAACAA  | CCACCAAGCA | 5160 |
| 242 |            |            |            |             |            |            |      |
| 243 | AACCCAATAA | TGATTTTCAC | TTTGAAGTGT | TCAACTTTGT  | ACCC       | ATATGCAGCA | 5220 |
| 244 |            |            |            |             |            |            |      |
| 245 | ACAATCCAAC | CTGCTGGGCT | ATCTGCAAAA | GAATACCAA   | CAAAAAACCA | GGAAAGAAAA | 5280 |
| 246 |            |            |            |             |            |            |      |
| 247 | CCACTACCAA | GCCCACAAAA | AAACCAACCC | TCAAGACAAC  | CAAAAAAGAT | CCCAAACCTC | 5340 |
| 248 |            |            |            |             |            |            |      |
| 249 | AAACCACTAA | ATCAAAGGAA | GTACCCACCA | CCAAGCCCAC  | AGAAGAGCCA | ACCATCAACA | 5400 |
| 250 |            |            |            |             |            |            |      |
| 251 | CCACCAAAAC | AAACATCATA | ACTACACTAC | TCACCTCCAA  | CACCACAGGA | AATCCAGAAC | 5460 |
| 252 |            |            |            |             |            |            |      |
| 253 | TCACAAGTCA | AATGGAAACC | TTCCACTCAA | CTTCCTCCGA  | AGGCAATCCA | AGCCCTTCTC | 5520 |
| 254 |            |            |            |             |            |            |      |
| 255 | AAGTCTCTAC | AACATCCGAG | TACCCATCAC | AACCTTCATC  | TCCACCCAAC | ACACCACGCC | 5580 |
| 256 |            |            |            |             |            |            |      |
| 257 | AGTAGTTACT | TAAAAACATA | TTATCACAAA | AGGCCTTGAC  | CAACTTAAAC | AGAATCAAAA | 5640 |
| 258 |            |            |            |             |            |            |      |

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**SEQUENCE VERIFICATION REPORT**  
**PATENT APPLICATION US/08/892,403A**

DATE: 11/29/97  
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| Line | Error                           | Original Text              |
|------|---------------------------------|----------------------------|
| 31   | Wrong application Serial Number | (A) APPLICATION NUMBER: US |